

SYMPOSIUM ARQUITECTONICS MIND, LAND AND SOCIETY – LOOKING FOR THE HUMAN CONDITION OF ARCHITECTURAL AND URBAN DESIGN RESEARCH PRACTICES AND THEORIES

ETSAB, Architectonics; Escola Tècnica Superior D'arquitectura De Barcelona
Barcelona: May 29-30-31, June 1 2018

The Cohesive Urban Social Fabric Between Local Architectural Identity and Climatic Response

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INTRODUCTION

Mario Botta¹ once said: “Architecture is the constant fight between man and nature, the fight to overwhelm nature, to possess it. The first act of architecture is to put a stone on the ground. That act transforms a condition of nature into a condition of culture; it’s a holy act”.² Through history, we see this interaction between us, nature and culture, this complicated relation shapes our life into social urban fabrics and architecture. Therefore, Architectural heritage is the most witness and expressive art and science to human being’s history book.

Since our environments are different, the logical consequence of urban fabrics also would be different in point of view the compactness, units’ form, materials, urban layout and streets. For example, the Saharan urban fabrics seems to be more compact with narrow streets and patio-built units, this urban fabric are also a result of social order needs, the hierarchy of streets from public to private shows the intimacy relation between local habitants and visitors, public spaces for social gathering like plazas assure the mix use of spaces, the preservation of landscape of local environment to integrate the design with nature and to demonstrate agriculture spaces in that fabrics. Therefore, to clarify this crossed complex fabrics we should find the harmonic serrated wheels which touch this elements or criteria.

The architectural community has had a strong and continuing interest in traditional and vernacular architecture. This has been rekindled by the need to develop an architecture that works with climate, rather than against it, to create more sustainable buildings. Earlier research and existing publications on traditional or vernacular architecture have followed an anthropological or archaeological approach, whereas books on climatic design and sustainable architecture tend to refer to contemporary principles and built precedents without direct reference to past experience.³

Architectural identity! what does it mean?

When we built our houses all in order to shape our social/urban fabric, we are expressing our identity, this identity constructed through many years under the juxtaposition of many factors, religion, culture, environment, science and knowledge. So, the shaped identity can be described or divided into architectural forms and urban fabric or design. This process should be a harmonic song between all these factors, in this paper the identity which related to environment and treat the climate is what we are going to explore and study, in order to understand these cohesive fabrics (case study: Ouled Djellal).

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COHESIVE URBAN SOCIAL FABRICS

*“... la tradition est la chaîne ininterrompue de toutes les novations et, par-delà, le témoin le plus sûr de la projection vers l’avenir”.*⁴

As Le Corbusier⁵ said, traditions are the consecutive actions through history which are the most expressive and witness to simulate the future, architecture and cities also considered as a part of this tradition. We can define these cities as fabrics, those fabrics are divided into two parts; urban fabrics (physical) and social fabrics (anthropological), to understand what do we mean by these concepts we have explored many studies and researches to define the city and the space through tradition, culture, identity and climate. In this subject, the reciprocal relationship between physical forms and anthropological aspect of space, it reflects and affects each other.

The City, the Space, the Territory

What is the subject of this urban anthropology whose necessity and relevance is constantly repeated? Should urban anthropology be an anthropology of or in the city, conceived as a divisible reality composed of almost unalterable structures and social institutions, a singular continent in which it is possible to encounter original cultures, which manage their co-presence? a bit like a mosaic? Should it not be above all an anthropology of the urban, treating the subject as singular, recognizable sometimes or alternately in other societies, in other historical moments, which would force the social scientist to work with specific tools and strategies, valid only for passes and other places?⁶

Anthropology of space

The anthropology of space, as an interdisciplinary science, deals with man's relations to space and time. Looking for the past, it tries to improve the present and to identify presuppositions for the future. More specifically, it aims to create a modern environment that can meet the needs of today's man, with a particular focus on discovering the qualitative values of space, so that a well-balanced harmony can be born again. The goal of the anthropology of space is not only the protection and preservation of past specificities, social groups and their history, but also the creation of new diversities to ensure identities and avoid uniformity and massification.⁷

The architecture of the human space revolves around thought, history and territory (body, society and environment). Thus identities, masks or traces, both individual and social, are constructed which determine a precise place. But the "mental structures" of this precise place and of this identity in equilibrium between concepts and forms, between the local and the global, between one's own culture and that of others, etc., those are not universal structures, but symbolic forms.⁸

In his research, Josep Muntanola Thornberg concludes that in search of a schematically lost architectural "layout or design", and after following several years of interdisciplinary dialogue, the prospective axes that define this "architectural layout and design" could be as follows:

- The plurality of cultures in space-time.
- Complementarity between globalization and new local identity.
- The interest of the notion of "identity" in the modern spatial and architectural layout/design.
- The interest of the transactional dimension of the built site itself, with its hybrid nature.
- Territories of invention.

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- The deep "dialogic" and "fibred" structure of contemporary space, in all the basic dimensions of any culture.⁹

Public Spaces

To conceive what a collective urban practice is and the role of space can play in, it is not pure ideology. It is not a question of prescribing what should be nor of Justifying what is silent, but of seeing clearly what it implies in terms of mastering the development of the urban space, the social organization or the collectivism and not individualism. If we have to define the notion of urban space without referring to aesthetic and functional criteria, we can consider that any void between buildings is an urban space. This "geometric" definition, however, depends on the way the buildings around it are arranged: an outdoor space can only be lived as an urban space if it has other extremely readable features. While the interior space, protected, is the symbol of the private, outer space, meanwhile, is open to unhindered movements and free air and may include public areas, semi-public and private. In addition, the city has an educational function that is sometimes forgotten but essential. It is one of those "secondary institutions" that are produced by man, and which reinforce or weaken the various values of civilization. This function can be read in the layout of its space. The city of teeming, winding little streets has not formed like the city with its wide avenues intersecting at right angles. Finally, we must be careful to forget the fundamental differences that appear between the types of personality and urban culture; because any intervention on the urban culture is possible only insofar as one accepts variations which can lead to changes of structure. Since societies are likely to remain largely urban in the future, the question is all the more important whether there is a type of personality that needs to be maintained, and how it is possible to change the culture in any way called urban! The challenge, through the anthropology of space, is theoretical.¹⁰



Fig 1. Wedding celebration in "El-Gbour" plaza, Ouled Djellal, March 1969, Source: <https://www.facebook.com/photo.php?fbid=177583032977397&set=pb.100021771045847.-2207520000.1538142285.&type=3&theater>

Mix-use (Uses and cultures)

The works of anthropologists show how the use of space varies according to cultures. The categories of opposition pure/impure, private/public, polite/impolite, masculine/feminine, the concepts of community, education or family so often evoked about difficulties of cohabitation in the same urban ensemble, also are understood very differently depending on the cultures of origin. It is not a question here of debating the theoretical question of the evolution of these cultural (or habitus) "models", but it is important to emphasize how long the processes of evolution of these norms are long. Recall also that many authors consider housing a "conservatory of cultures", a private space protected from external influences, a "domestic citadel", while in the public space (the street, the transport, public buildings) or

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at work, the dominant public standard applies. The conviviality is thus often compared to a "conquest of the urban space for civil purposes". The relations of conviviality organize the use of the material means necessary to assure the conditions of cohabitation of the individuals and the social groups in the city, the civility is built around the know-how of the spaces in the rules of the suitability, it engages the relationship with others. The history of conviviality and living together is confused with the constitution of a police space "there is a relationship between the emergence of the rule, the fact that it is imposed on all, that it is obligation for the group and the appearance of the urban police". The crisis of the urban space and the disqualification of the modes of living interfere with the status of spaces and the rules of their use.¹¹

Quality of space and spatial specificities

From now on, humans' needs in relation to place are not only quantitative but also qualitative. The physical qualities of space are natural qualities (water, sea, rivers, hills, cavities, orientation points), or ideological (places of development of civilization, places of fighting, spaces of temples, churches, mosques, ... etc.); qualities transform space into place and because of the aesthetics values of each place, the psychological needs of the men or groups who live or visit these places are satisfied. The main elements of the qualitative performance of a place are: its natural, cultural, political, social and religious specificities, they characterize the manifestations of a social group in a physical place by ensuring its perception of space, its psychological health, its cultural and historical continuity, its habits and customs. These specificities are exactly testifying the system of values according to which a social group hierarchizes its members, avoids the uniformity of the individuals and to be distinguished from other social groups. The societies of the past present among themselves intense differences; due to the nature and topology of their foundation, their borders, their ideology, their religion, their economic systems and their cultural levels. These specificities mark the space of their footprints, these characteristics are protected by rules, which depend on all the factors mentioned above. Modern societies, especially the "developed" are characterized mainly by a banality of the way of life, which is due mainly to the rapid development of technology, mass media, tourism, ease of movement etc. This banality, which serves the fulfillment of the needs for a standardized society, results the uniformity of the various manifestations, of the way of life and the massification of individuals.¹²

But architecture is not just an object to consolidate or confirm the fact of the theories of social sciences. It is an activity not only of the reproduction of the same style or architectural design; but on the contrary, installing novelty, discontinuity, difference, both in the social "fabric or tissue", in the time of society which is using it and even in the history of it, since the building and fabric continue beyond the "period" that gave it its relevance.¹³

Culture and Tradition in Architecture

"Culture is not composed of elements which can be disassembled and re-composed: culture has to be lived. Cultures mature and sediment slowly as they become fused into the context and continuity of tradition".¹⁴

Tradition: Tradition¹⁵ (is a difficult term. It is somehow implicit but, at a closer look, it has many coordinates: as a habit of a space, as a pre-use or pre-understanding of space, meaning of things, or the typical manner to do, to express, to see etc. There is a tradition of every field, of any domain, this is clear. And this also applies to architecture. To architecture, tradition can be understood as vernacular,

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but also as traditional architecture – rural and local habits in architecture. Vernacular means (in architecture) without a known author. There is also a tradition of every trend and movement in architecture, or in any predefined space - a cultural or a valuable place. Tradition reference can/may be: culture, anthropology, memory, habits, manner, and history - periodicity.

All these notions are the basis of any proof that built architecture should be consider an important cultural ingredient¹⁶ for direct or indirect involved specialists in the city theory. And not at least, educators have to consider this cultural issue very important in targeting new characters for future city integrated rehabilitation, preservation, sustainable developments, and innovations growth.¹⁷

Globalization Crisis

Globalization is associated, as we have seen, with the dispersion of difference, the fragmentation and the fluidity of identity. Thus, the place where the space is ceasing to be formulated as a space of authenticity. The postcolonial diasporas are an illustration of this. Identity becomes "diasporic"; it spreads into several authentication spaces. It cannot be universalized nor essentialized; being multidirectional, it induces a doubt about the totalizing and territorial definitions. The irony is that the more global the world becomes, the more the areas of culture, consciousness and identity fragment and anti-universalized. This crisis of universalism poses the problem of the powers of globalization and their spaces, the anti-universalization of the human being causes the disappearance of the "world" which ceases to constitute the condition of possibility of a universal space.¹⁸

The anti-humanism

The crisis of universalism thus makes sense only within the broader framework of the redefinition of the human. If the meaning of the universal has ceased to influence transformative imaginations, then the religious message is no longer directed towards "man", but, we can say so: towards the "extinction of man". Once identity becomes fragmented, the important thing is no longer just the proliferation of new cultural, aesthetic or religious derivations to express human conditions, but also in human variations.¹⁹

Architectural identity

Identity is a process, and not a 'found' object. It may be likened to the trail left by civilization as it moves through history. The trail is the culture, or identity, of that civilization. As it is a process, identity cannot be fabricated. We develop our identity by tackling what we perceive to be our real problems.²⁰ So, Architectural identity supposed to take in consideration the problems may occur before designing the space, after building it and while using it, this complex issue can be related to these concepts: (social anthropological needs, climate issue, for example). Therefore, while we design and use the spaces through these years and after the juxtaposition of traditions, the architectural identity has built, not only the architectural models and elements, but also the usual use to the space and the understanding of the space in the unconsciousness of users and receivers. Thus, the pre-visualizing of the urban fabric is an important issue too, to control the harmonic process of this spaces all under the tent of architectural identity.

CLIMATIC RESPONSIVE DESIGN

"the amazing skill shown by primitive and peasant builders in dealing with climatic problems, and their ability to use minimum resources for maximum comfort".

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However, the precise role and importance of climate as generative principle for built form is still an open question? Rapoport²¹ was careful to lay aside claims of climatic determinism:

*“One need not deny the importance of climate to question its determining role in the creation of built form. Examination of the extreme differences in urban pattern and house types . . . shows them to be much more related to culture than to climate”.*²²

Vernacular Architectural Design

Studies of vernacular buildings and settlements conducted since the publication of Rapoport's seminal book corroborates his observations. However, while the built form and materiality of vernacular buildings may suggest their climatic provenance, in itself this is hardly proof of all-year environmental performance. For example, thick masonry construction with small windows, a characteristic of Mediterranean vernacular, can provide daytime indoor temperatures cooler than outdoors on these two features alone, thus serving such buildings well in the hot and sunny summers of this climatic region.²³ In winter, however, with mean daily outdoor temperature hovering around 10–12°C, the small windows and thick masonry walls are at a disadvantage as they jointly prevent indoor temperatures from rising much above these values, which are well below thermal comfort range; the building is thus no longer capable of being free-running and becomes dependent on the hearth and on non-renewable energy sources.

Our objective today is to achieve acceptable indoor environmental conditions for occupants with the least expenditure in energy and materials, replacing non-renewable energy sources with renewable ones and doing away with environmentally unfriendly processes and materials.

We have the knowledge of building physics, wide choice in materials that can provide appropriate environmental properties, and a good understanding of what drives environmental performance derived from measurements and simulation studies. What lessons can vernacular architecture continue to hold for us today?

The papers in this book show that there are two important ways in which vernacular architecture continues to be of direct and practical interest for architects and students of architecture today. First, it provides a large pool of buildings on which to study the application of passive techniques of environmental design²⁴ that are not just technical applications but integral constituents of the buildings' architecture and the inhabitants' lifestyle.

In contrast, few contemporary buildings lend themselves to such study, a situation that is particularly acute in developing countries and warm climates where conventional air conditioning is seen as a panacea and applied indiscriminately.

The second important reason for which vernacular architecture continues to be of direct and practical interest today echoes Le Corbusier's statement at the start of this introduction. Vernacular architecture never ceases to appeal to architects and students of architecture. In this capacity it has often inspired the development of new ideas and projects, acting as a springboard and model for innovation rather than imitation.²⁵

Urban Layout

There is no doubt that the climate has the first impact on the urban layout design in the traditional city; that's why we notice the “compact layout” in hot and arid zones “Ouled Djellal for example”. The layout in these zones features by three elements: “narrow streets, wide open plazas and interior gardens”.

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When you see the general view of traditional city layout, you recognize the wide courtyards which are spread in the urban fabric and work as “cool fresh air tanks”, as seen in Marrakech, Tunis and Damascus. Therefore, this organigram is preferred in climatic point of view than the urban layout of wide streets and orthogonal layout as seen in Washington. The work of this narrow zigzag streets is the same of the courtyards; it stacks up the cool fresh air during the night and block it to waste in the morning time to regulate the temperature through this fabric.²⁶

METHODOLOGY

This research uses an inductive and deductive methodology through data collection to achieve a deeper understanding about identity, urban identity and different approaches to revive the urban identity. This could be done by analyzing the local adaptations and additions done to already existing spaces through field visits and interviews with people to understand their points of view and needs. Through an analytical methodology a relevant example that attempt to reinvent the local identity will be studied. Thus, guidelines for re-inventing local urban identity will be devised to be applied to the urban redesign of the old kernel of Ouled Djellal through an extension by a cultural district towards the valley.

This paper adopts the idea of integrating the traditional architecture that is related to the local environment contexts and available resources into contemporary architecture in south of Algeria. The relationship between Architecture and the Climate is always a hotspot in the recent Architecture studies. Traditional architecture, which perfectly show the principle of climate-oriented Architecture, have become very popular study project by more and more researchers. This paper develops a framework for integrating a native Algerian cultural practice into the contemporary architecture that as an approach for strengthen the identity of the region.

Ouled Djellal Old Kernel

Ouled Djellal this old traditional village/town. During past years, its heritage always been rich and full of culture, not only by its traditional layout and architecture, it is also by habits, beliefs, ethics and living manners which belong to ancient time, old kernel of it, is almost getting to change (under the name of ‘fragile construction’), only that core layout still saved.

- In this subject, I tried to preserve this authenticity by doing an extension of this area toward the most point of reference here in Ouled Djellal “Oued Djedi” to conserve this heritage by designing this “cultural district”.

The region is characterized by a scientific knowledge of the temperature range (the difference between the top and bottom temperature) is very large may be up to thirty; This great temperature range of problems for the population is that the use of cooling methods in summer and winter heating, especially after taking the population to give up something The old buildings made of local clay clay and natural gypsum, materials that have been adopted for many centuries, are adapted to the atmosphere of the region as they are the result of cultural and historical experiences rooted in the depth of history and derived from technology acquired thousands of years ago. The means that were used and the building technology that was adopted were the ones that would have cooled or cooled the atmosphere according to scientific techniques acquired over the centuries. Many people in the region, especially the older ones, are aware of the curse of reinforced concrete and construction engineering, known as "modernity", and are consciously aware that they are the primary culprits in the climatic climate problems that have plagued the region for a few decades.²⁷

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Proposed Extension (Cultural District)

Motivation

There are many reasons motivate me to choose such project and terrain, which are:

- Ouled Djellal is lacking to such cultural project (due to an interview with Mr. Benbouzid -the responsible manager of the cultural center of Ouled Djellal-), especially after town/density growth.
- The terrain is an extension of the old core of Ouled Djellal layout toward the “Djedi” valley.
- This extension is for saving the integration with palmy environment and keep the landscaping visible for passengers/visitors (national road).

Hypothesis

- The summer is highly increasing temperature degrees. So, we suppose to find the best orientation and complexity (22.5° Northern-eastern/western) is the best orientation due to Hasan Faithi's book (traditional energies).
- We have also to preserve the energy by using a compact layout (such as the old core of Ouled Djellal). This compactness results us urban elements like narrow paths, thick walls, courtyards/gardens and plazas.
- Islamic elements will be used, due to its environment/climate solutions. Such as Mochrabeiyah, Malqaf, Takhtabouch, Courtyards and Gardens.
- Organizational program will be produced due to needs by using fitting Islamic/traditional proportions (golden ratio).
- For applying an emotion in such cultural project, we found that the musical note (the tune produced by winds) will be used as an idea for orienting and playing with walls/forms.

Problematic

Can we build a cultural district which its Architecture identifies -Ouled Djellal- local aspects (Culture, traditions, unconscious perspectives ...) and at the same time preserving and respecting the dessert environment needs (climate, protection, ventilation, day-lighting ...)?!

- We have to find an appropriate blend between those factors, go & back between identity entity and climate exigency and apply it into an Architecture gait.

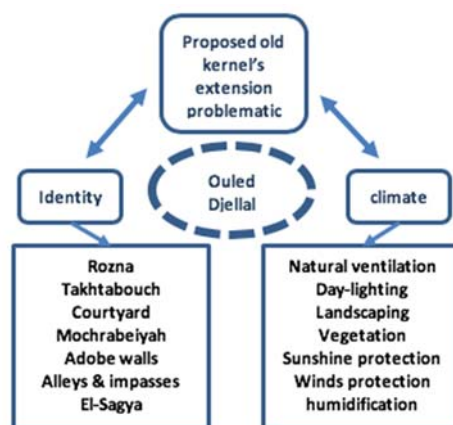


Fig 2. Conceptual problematic, Ouled Djellal, Source: Author

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Fig 3. First guidelines for the extension, Ouled Djellal, Source: Author

- Creating a garden and walking plaza between last alleys from old kernel toward the valley and the project.
- Collective parking in front of the valley.
- Directing the main traces toward the Northern-Eastern by 22.5° (due to Hasan Fathy's recommendation).
- Preserving the palms surrounding the project (especially the southern side to preserve it from hot winds).
- Saving the landscape "towards national road and high cemetery".
- We have a chance to rescue the valley and gain a beautiful landscape of the corniche & valley.
- Protecting the project against sandstorms by water spaces.

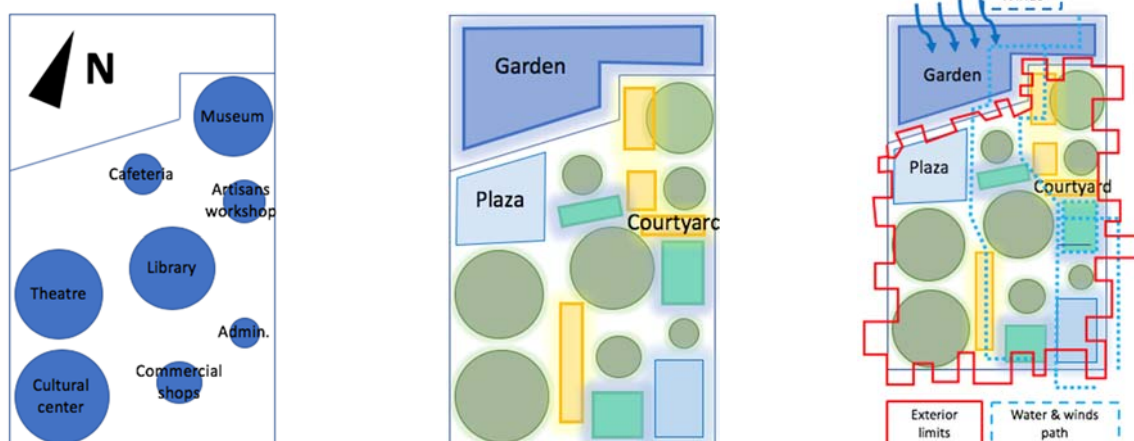


Fig 4. Dividing spaces due to environmental needs of the proposed extension, Source: Author

Program:

- We draw circles with different diameters due to surfaces we need "Zoning" and order them one by one regarding to find best blend inside terrain "golden rectangle" due to function.
- Trying to organize inside spaces in order to provide thermal regulators (courtyard, gardens and sagya), in a way to preserve Wind path inside the district.
- We applied the integration between project and terrain "extending old kernel layout -Zigzag-".

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- Applying old local environmental strategies to preserve identity and environment “courtyard, patio, Rozna, Takhtabouch”.
- Surrounding the project by palms “landscape & protecting”, using Hierarchy inside the project “Derb, alley, impasse” (old kernel at Ouled Djellal).
- Using a blend between local raw materials “mud brick, stone and lime” and modern materials “metal and glass in small parts of the extension”.
- Simulate the old kernel of Ouled Djellal with project by a garden plaza and directs the project toward the old mosque “Almasdjid El-Atique”.
- Inspiring the surrounded walls from “The Path of The Wind” note –musical note- to present the Zigzag and the fortified district.

Simulate Scenes:

- Identity/Climate duality

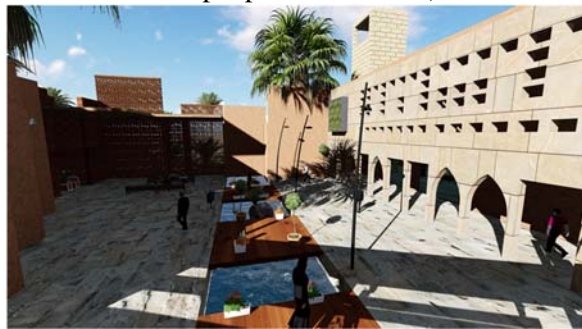


(A) Source/ Author



(B)²⁸

- Shadow and people's activities (Rahba's Corner and social interaction)



(C) Source/ Author



(D)²⁹

- Minaret and Malqaf (Public facades and skyline)



(E) Source/ Author



(F)³⁰

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- Landscape and environment (Valley topography and palms chain)



(G) Source/ Author



(H)³¹



(I)³²

- Entrances landmark (Plazas and gates)



(J) Source/ Author



(K)³³

- Urban Hierarchy (Cohesive urban fabric and compact layout design)



(L) Source/ Author



(M)³⁴

Table 1. Climatic responsive design (Ouled Djellal). Source/ Author

Criteria	Architectural level		Urban level	
	The concepts related to design	The concepts related to materialization	The concepts related to design	The concepts related to materialization
Climate				
Temperature	thick walls, courtyard and domes	Adobe and stone walls	Compact layout, Takhtabouche and gardens	Local natural materials

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Natural ventilation	Malqaf, orientation	Wood for Mochrabeiyah	Orientation, small entries and bigger exits	Palms belt in southern part
Daylight	Rozna, Mochrabeiah	Curved wooden Mochrabeiyah	Orientation (North-South)	Shadowy trees and palms
Vegetation and humidification	Interior garden	Palms and olive's trees	Gardens and Southern belt of palms	Palms and Sagya
Sunshine protection	Small openings and arcs	Deep openings and irregular	Impasses and alleys	Gypsum walls and irregular surface
Energy	Compact plan and spaces' organism	Adobe, stone, wood and marble	Cohesive layout with narrow streets	Local natural recycled materials

CONCLUSION

In this short essay we tried to figure out the strong relation between climatic design and identity product, this product passed through many effects and variables in processing and producing this object, such as religion, culture, climate, ...etc. So, what is important for us as architects is to try to find a middle ground between these elements through design new projects or extensions; while these vernacular objects are showing an excellence in this area (Ouled Djellal in southern desert of Algeria). Therefore, Ouled Djellal cohesive urban/social fabric is influenced by climate as a very influential element in addition to other cultural/religion affects, thus the identity product shows a very high climatic responsive design and this identity should be continue to be adapting new concepts of contemporary architecture but not losing the main objective which is the climate and cohesive social fabric. Therefore, we found out that the norms of LEED rating system for green neighborhood and buildings are applied consequently by assuring the identity on the proposed extension project's design (with a cultural district of Ouled Djellal).

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SYMPOSIUM ARQUITECTONICS MIND, LAND AND SOCIETY – LOOKING FOR THE HUMAN CONDITION OF ARCHITECTURAL AND URBAN DESIGN RESEARCH PRACTICES AND THEORIES

ETSAB, Arquitectonics; Escola Tècnica Superior D'arquitectura De Barcelona
Barcelona: May 29-30-31, June 1 2018

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- ²³ The thermal capacity of the thick masonry walls modulates the indoor temperature towards the daily average of the outdoor temperature while small windows limit heat gains from the outside. In this way indoor temperatures can remain below 30°C while the outdoor air temperature rises above 35°C and may feel much warmer for subjects exposed to direct sunshine. At night, when the outdoor temperature falls to the vicinity of 20°C, opening the windows allows daytime heat gains from occupancy to be dissipated and the building can then start the following day at a temperature close to the cool morning temperature outdoors.
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